Problem: What affect do sugar substitutes have on sugar cookies?

Thorpe

Introduction: I have always liked to bake, and I wanted to use my skills to try something new.

Background Information: A sugar cookie is a cookie made from sugar, flour, butter, eggs, vanilla, and either baking powder or baking soda. Sugar cookies may be formed by hand or rolled and cut into shapes. They are commonly decorated with frosting, sprinkles, or a combination of both. In North America, sugar cookies are popular during the holidays of Christmas and Halloween.

Hypothesis: I predict that cookies made with the original recipe will taste better than cookies made with the sugar substitutes because the recipe had already been tested to make it the best possible combination of ingredients.

Variables:

\*Controlled: Same Day, Same Recipe

\*Independent: Sugar Substitutes

\*Dependent: The Baked Goods

Materials:

\*Fannie Farmer Sugar Cookie Recipe

\*2 Sticks of Butter

\*3/8c. Sugar

Fannie Farmer Sugar Cookie Recipe

You will need:

\*¼ pound of butter

\*¾ c sugar

\*½ teaspoon vanilla

\*1 tablespoon cream or milk

\*1 ¼ c flour

\*1/8 teaspoon salt

\*¼ teaspoon baking powder

\*3/8c. Honey

\*3/8c. Splenda

Preheat the oven to 350oF. Cream the butter. Then, gradually add the sugar, beating until light. Add the egg, vanilla, and cream or milk, and beat thoroughly. Mix the flour, salt, and baking powder together in separate bowl. Add to the first mixture and blend well. Arrange by teaspoonfuls on cookie sheets, 1 inch apart. Bake for 8-10 minutes, or until lightly browned.

\*3/8c. Stevia

\*2 Eggs

\*1 tsp. Vanilla

\*2 tbsp. Cream or Milk

\*2 1/2c. Flour

\*1/4 tsp. Salt

\*1/2 tsp. Baking Powder

\*1 Mixer

\*1 Mixing Bowl

\*2 Small Spoons

\*2 Bowls

\*1 Cookie Sheet

\*Scrubby

\*Soap & Water

Procedure:

\*Assemble ingredients according to recipe.

\*Pre-heat the oven to 350o.

\*Bake one batch of cookies according to recipe, but half it.

\*Wash dishes/pans while cookies are in the oven.

\*Repeat steps three and four. Instead of sugar, substitute honey.

\*Repeat steps three and four. Instead of sugar, substitute Splenda.

\*Repeat steps three and four. Instead of sugar, substitute Stevia.

\*Observe and eat cookies.

\*Write down observations and record results.

Major Observations:

\*Sugar (Controlled): Normal Batch of Cookies

\*Honey: Dough is Very Sticky! If touched, some will stick to hand. It smelled like honey in the oven and after cooked.

\*Splenda: When I mixed the Splenda and butter with the eggs, vanilla, and milk, it looked like grits. The finished dough was very doughy, but this dough tasted the most similar to the batch of controlled cookies.

\*Stevia: The dough was very white. It was also sticky and doughy, but not as much as the batches made with honey and Splenda.

Results:

Smell

\*Sugar (Controlled): No Smell

\*Honey: Smells like Honey

\*Splenda: No Smell

\*Stevia: No Smell

Visual

\*Sugar (Controlled): Typical Batch of Cookies, Light Golden-brown

\*Honey: Typical Batch of Cookies, Light Golden-brown

\*Splenda: Smaller Cookie, Lumpy, Somewhat Pale

\*Stevia: Very Pale, 2nd Lumpiest

Texture

\*Sugar (Controlled): Breaks Easily, Nicely Rounded, Good Consistency

\*Honey: Breaks Easily, Nicely Rounded, Good Consistency

\*Splenda: Breaks Easily, Good Consistency, Biscuit Quality

\*Stevia: Breaks Easily, Good Consistency, Biscuit Quality

Taste

\*Sugar (Controlled): Soft, Chewy, Sweet, Yummy

\*Honey: Soft, Chewy, Sweet, Yummy

\*Splenda: Like a Sweet Biscuit – not a cookie, Yummy

\*Stevia: Chewy, Overly Sweet, Recipe Needs Definite Modification

Conclusion: My hypothesis was supported by my experiment. The original recipe tasted the best, but if you don’t have sugar in the house, there are suitable substitutes.

Possible Applications: If you don’t have any sugar – and you’re not looking for perfection – it is proven than other ingredients work just fine. Another application is that some of the sugar substitutes are reduced calorie. These sweeteners are good for people with restricted diets. A third application is that some of these sweeteners are suitable for diabetic needs.

Possible Causes of Error: I was 1/16c. short of Stevia and some dishes were not 100% dry.

Further Research: I could experiment with modifications of the recipe to adjust the taste, texture, and visual appeal of cookies baked with sugar substitutes. There are additional sugar substitutes that have not been experimented with. Further experimentation with more sugar substitutes is what I might like to do.

Time Spent: 11 Hours

Bibliography:

"Baking 101, Baking Substitutes, Baking Conversions :: Become a Better Baker." *Baking Tips &*

*Techniques, Recipes, Learn to Bake*. Web. 13 Mar. 2012. <http://becomeabetterbaker.com/Baking-101.aspx>.

RINGSPRINGS. "Sugar Cookies." *Allrecipes.com*. Web. 13 Mar. 2012.

<http://allrecipes.com/recipes/desserts/cookies/sugar-cookies/>.

"Sugar Substitute." *Wikipedia*. Wikimedia Foundation, 13 Mar. 2012. Web. 13 Mar. 2012.

<http://en.wikipedia.org/wiki/Sugar\_substitute>.

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